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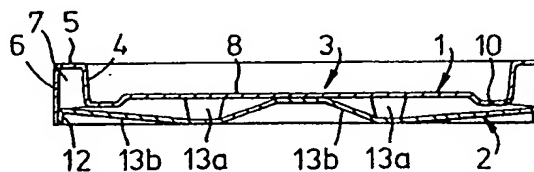
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(54) Improvements relating to  
shower trays

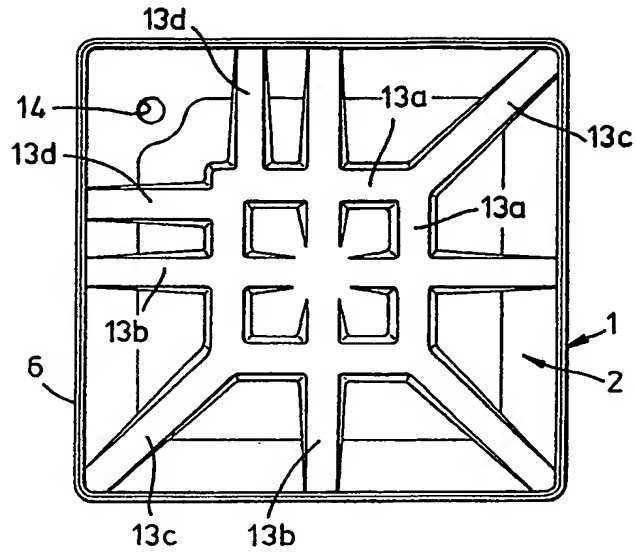
(57) A shower tray comprises an upper plastics moulding 1, preferably made of glass reinforced plastics, defining the floor 8 of the tray, an inner peripheral wall 4, a flat upper rim 5, and an outer peripheral wall 6 extending below the level of the floor. The moulding 1 is made substantially rigid by means of a strengthening

understructure which is fixed firmly to the underside of the moulding, the understructure preferably being formed by a lower moulding 2 which is preferably also made of glass reinforced plastics and which is bonded to the inside of the outer peripheral wall 6 and to the underside of the floor 8 to form with the upper moulding 1 an integral closed shell construction including a peripheral box section 7 and a number of intersecting box sections.

Fig. 3.



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*Fig. 1.*

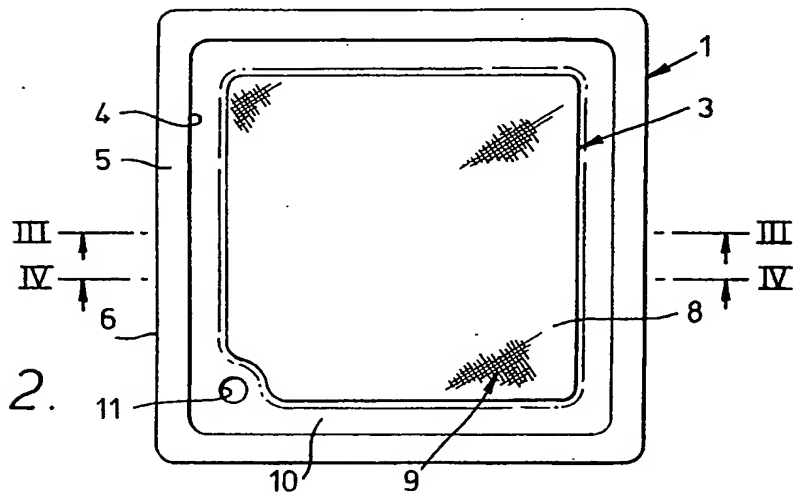
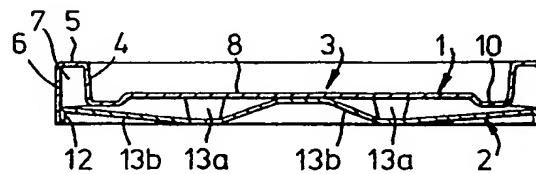


Fig. 2.



*Fig. 3.*

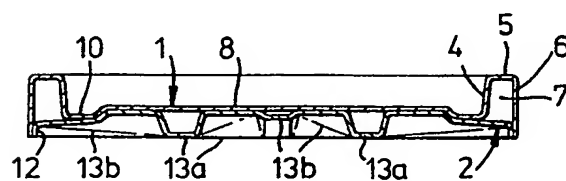


Fig. 4.

## SPECIFICATION

## Improvements relating to shower trays

This invention relates to shower trays.

Conventional shower trays are either made of  
 5 porcelain, forming trays which are of good quality  
 and are strong and durable but which are heavy  
 and expensive, or are made of moulded sheet  
 plastics material, for example acrylic sheet,  
 forming trays which are light and inexpensive but  
 10 which are thin and are not very strong or durable.  
 Also, the moulded sheet plastics trays are  
 relatively flexible, and unless the underside of the  
 floor of the tray is properly supported over virtually  
 its whole area there is a tendency for the rim of  
 15 the tray to flex inwards when a person stands in  
 the tray. When the tray is butted and sealed  
 against a wall, such flexing of the rim rapidly leads  
 to failure of the seal.

According to the present invention we propose  
 20 a shower tray comprising an upper moulding  
 which is made of plastics material and which  
 defines the floor of the tray and an outer  
 peripheral wall extending above and below the  
 level of the floor, and a strengthening under  
 25 structure which is bonded rigidly to the underside  
 of the upper moulding to render the upper  
 moulding, and hence the tray, substantially rigid  
 and inflexible.

Shower trays constructed in accordance with  
 30 the invention will have much greater strength and  
 rigidity than the conventional moulded plastics  
 trays, but can still be made very much lighter and  
 less expensively than the porcelain trays. The trays  
 should therefore be much easier to install, and  
 35 also more durable, than the conventional moulded  
 plastics trays.

Preferably, the strengthening understructure  
 has a portion which is located in a central region  
 of the tray and which has its bottom surface lying  
 40 in the same plane as the lower edge of the outer  
 peripheral wall. With this arrangement, when the  
 shower tray is placed on a flat surface, the tray will  
 be firmly supported with the lower edge of the  
 outer peripheral wall and the central portion of the  
 45 understructure, which is of course rigidly  
 connected to the underside of the upper moulding,  
 in contact with the surface. There is therefore no  
 need for additional members to be placed under  
 the tray to support its floor as is commonly the  
 50 case with conventional moulded plastics trays.

Preferably the strengthening understructure  
 comprises a lower moulding which is also made of  
 plastics material and which is bonded rigidly to the  
 inside of the outer peripheral wall and to the  
 55 underside of the floor to form an integral closed  
 shell construction with the upper moulding. This  
 leads to a particularly simple but strong  
 construction.

Preferably the upper and lower mouldings are  
 60 made of glass fibre reinforced plastics material.  
 This means of course that the mouldings cannot  
 be vacuum formed or pressed from pre-existing  
 sheets of plastics material, but on the other hand  
 the use of glass fibre reinforced plastics not only

65 leads to a strong and more rigid product but also  
 has the advantage that a much wider range of  
 colours can be offered economically since it is no  
 problem to dye relatively small batches of resin as  
 required.

70 Preferably the tray floor and the outer  
 peripheral wall defined by the upper moulding are  
 connected by a portion of the moulding which  
 defines an inner wall and an upper rim and which  
 forms with the outer peripheral wall an inverted  
 75 channel section which is closed by the lower  
 moulding to form the tray with a peripheral box  
 section.

Preferably the lower moulding has a number of  
 channel section ribs which are closed by the tray  
 floor portion of the upper moulding to form box  
 80 sections, and in preferred embodiments of the  
 invention in which a substantially central portion  
 of the strengthening understructure has its bottom  
 surface in the same plane as the lower edge of the  
 85 outer peripheral wall, this portion may be formed  
 by at least some of the ribs of the lower moulding.

Preferably the lower moulding is formed with a  
 peripheral flange which fits substantially flush  
 against the inside of the outer peripheral wall and  
 90 is bonded to the wall, thereby reinforcing the  
 lower edge of the outer peripheral wall on which  
 the tray stands.

The tray floor defined by the upper moulding  
 preferably has a slightly raised central standing  
 95 area surrounded by a peripheral drainage channel,  
 the drain hole of the shower tray being located in  
 this channel, preferably at one corner of the tray.  
 As is common with shower trays, the standing  
 area of the floor may be provided with a textured  
 100 or embossed slip resistant upper surface. A  
 particularly effective slip resistant surface is  
 obtained by providing the standing area with an  
 embossed pattern which is similar to that provided  
 on some boat decks and which has a sort of fish  
 105 scale appearance.

A preferred example of a shower tray in  
 accordance with the invention is illustrated in the  
 accompanying drawings, in which:—

Figure 1 is an underneath plan view;

110 Figure 2 is a top plan view;

Figure 3 is a section taken on the line III—III in  
 Figure 2; and,

Figure 4 is a section taken on the line IV—IV in  
 Figure 2.

115 The shower tray is substantially square in plan  
 view, and comprises a glass fibre reinforced  
 polyester upper moulding 1 and a base moulding  
 2 made of the same material joined integrally to  
 the underside of the upper moulding 1 to form a  
 120 strong rigid structure having closed shell  
 strengthening sections as described later.

The upper moulding 1 defines a floor area 3 of  
 the tray, an upstanding inner wall 4, a flat upper  
 rim 5, and an outer peripheral wall 6 which  
 125 extends from the rim to below the level of the floor  
 3, the walls 4 and 6 and the rim 5 together  
 defining an inverted channel section 7. The floor  
 area 3 comprises a slightly raised central standing  
 area 8 which is provided with an embossed slip-

resistant surface, as partly indicated at 9, and a drainage channel 10 which surrounds the standing area 8 and contains a drain hole 11.

The base moulding 2 has a peripheral flange 12 which fits against the inside of the lower portion of the outer peripheral wall 6 of the upper moulding, and is also provided with an arrangement of channel section strengthening ribs 13, the remainder of the base moulding 2 being shaped to fit roughly against the underside of the floor area 3 of the upper moulding. As shown in Figure 1, the ribs 13 include four central ribs 13a forming a square having a side which is approximately one third the length of the side of the shower tray, the base of the ribs 13a lying in the same plane as the lower edge of the peripheral flange 12, as can be seen in Figure 4. There are also four mutually perpendicular ribs 13b which intersect the ribs 13a and which slope upwards from the base of the ribs 13a both towards the centre of the moulding 2 and towards the outer edge. In addition there is a diagonal rib 13c extending from each of three corners of the square formed by the ribs 13a to the corresponding corner of the moulding 2, and at the other corner, where the base moulding 2 is provided with a drain hole 14 in a position corresponding to the hole 11 of the upper moulding, there are two ribs 13d extending between the ribs 13a and the edge of the moulding. As with the ribs 13b, each of the ribs 13c and 13d slopes upwards away from the base of the ribs 13a.

In manufacturing the shower tray, the base moulding 2 is made first, the underside of the moulding being formed in contact with the mould to provide a smooth surface finish. The upper moulding 1 is then laid up in its mould with the intended upper surface of the moulding in contact with the surface of the mould. When the moulding 1 has been laid up to the required thickness and before the polyester resin has cured, the previously formed base moulding 2 is placed in position on the uncured moulding 1 while it is still in the mould. The bases of the ribs 13a and the lower edge of the peripheral flange 12 are arranged to be co-planar with the lower edge of the peripheral outer wall 6 of the moulding 1, these edges of course being inverted in the mould. If necessary additional resin is placed between the mouldings 1 and 2 to ensure good contact and bonding between the mouldings in the areas between the ribs 13 and between the flange 12 and the wall 6. When the upper moulding 1 and the bonding resin has cured, the finished shower tray is removed from the mould, and, as can be seen from Figures 3 and 4, the bonded upper and base mouldings together form a closed shell structure in which the peripheral channel section 7 and the channel sectioned ribs 13 are closed to form box sections, giving the structure particularly good strength and rigidity.

In the example shown the height of the shower tray, as defined by the height of the outer peripheral wall 6, is about 10 cms, the tray being designed to be installed on a hollow floor which

allows the shower drain pipe, which is fitted in the aligned holes 11 and 14 of the two mouldings, to be connected to a waste pipe below the floor. For solid floors however, the shower tray may be made to have a greater height, for example 20 cms, by increasing the extent of the outer peripheral wall 6 below the level of the floor area 3 to provide sufficient clearance for the drain pipe to be connected to a waste pipe below the floor of the tray but above the floor on which the tray is mounted. In this case the depth of the ribs 13a will be increased as necessary to maintain the bases of these ribs co-planar with the lower peripheral edge of the tray, and if desired the depth of some or all of the other ribs may also be increased.

#### CLAIMS

1. A shower tray comprising an upper moulding which is made of plastics material and which defines the floor of the tray and an outer peripheral wall extending above and below the level of the floor, and a strengthening understructure which is bonded rigidly to the underside of the upper moulding to render the upper moulding, and hence the tray, substantially rigid and inflexible.

2. A shower tray according to claim 1, in which the strengthening understructure has a portion which is located in a central region of the tray and which has its bottom surface lying in the same plane as the lower edge of the outer peripheral wall.

3. A shower tray according to claim 1 or claim 2, in which the strengthening understructure comprises a lower moulding which is also made of plastics material and which is bonded rigidly to the inside of the outer peripheral wall and to the underside of the floor to form an integral closed shell construction with the upper moulding.

4. A shower tray according to claim 3, in which the upper and lower mouldings are made of glass fibre reinforced plastics material.

5. A shower tray according to claim 3 or claim 4, in which the tray floor and the outer peripheral wall defined by the upper moulding are connected by a portion of the moulding which defines an inner wall and an upper rim and which forms with the outer peripheral wall an inverted channel section which is closed by the lower moulding to form the tray with a peripheral box section.

6. A shower tray according to any one of claims 3 to 5, in which the lower moulding has a number of channel section ribs which are closed by the tray floor portion of the upper moulding to form box sections.

7. A shower tray according to claim 6 when dependent upon claim 2, in which the portion of the strengthening understructure having its bottom surface in the same plane as the lower edge of the outer peripheral wall is formed by some of the ribs.

8. A shower tray according to any one of claims 3 to 7, in which the lower moulding is formed with a peripheral flange which fits substantially flush

against the inside of the outer peripheral wall and is bonded to the wall, thereby reinforcing the lower edge of the outer peripheral wall on which the tray stands.

- 5 9. A shower tray according to any one of the preceding claims in which the tray floor defined by the upper moulding has a slightly raised central standing area surrounded by a peripheral drainage channel.

- 10 10. A shower tray according to claim 9, in which the standing area of the floor has an embossed slip resistant surface.

11. A shower tray according to claim 10, in which the pattern of the embossed slip resistant surface has a fish scale appearance.

- 15 12. A shower tray according to claim 1, substantially as described with reference to the accompanying drawings.